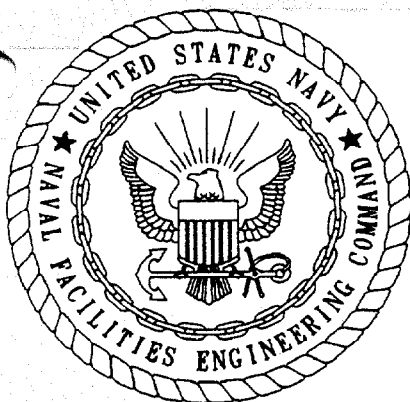


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FINAL BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING
REPORT STUDY AREA 19 NTC ORLANDO FL
6/1/1997
ABB ENVIRONMENTAL

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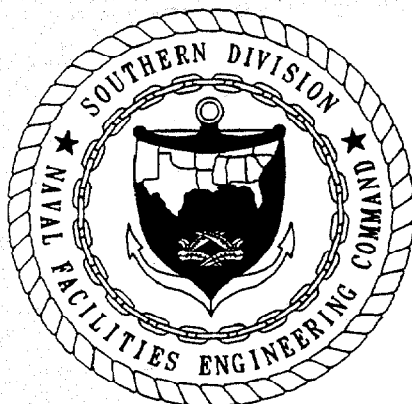
**BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT**

STUDY AREA 19

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

**UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89-D-0317/107**

JUNE 1997



**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010**

**BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT**

STUDY AREA 19

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

Unit Identification Code: N65928

Contract No. N62467-89-D-0317/107

Prepared by:

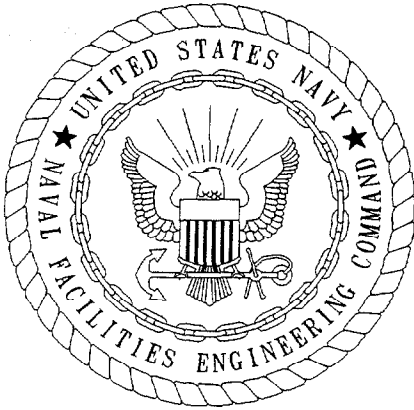
**ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301**

Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418**

Barbara Nwokike, Code 1873, Engineer-in-Charge

June 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: June 4, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Richard Allen
Project Technical Lead

(DFAR 252.227-7036)

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BRAC Environmental Site Screening Report
Study Area 19
Naval Training Center
Orlando, Florida

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Study Area 19
Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	aboveground storage tank
bls	below land surface
CLP	Contract Laboratory program
DDT	dichlorodiphenyltrichloroethane
DQO	data quality objective
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
FOSL	Finding of Suitability to Lease
GPR	ground penetrating radar
HSA	hollow-stem auger
$\mu\text{g}/\ell$	micrograms per liter
$\mu\text{g}/\text{kg}$	micrograms per kilogram
NTC	Naval Training Center
OPT	Orlando Partnering Team
PCE	tetrachloroethene
RBC	risk-based concentration
RV	recreational vehicle
SCG	soil cleanup goal
TAL	target analyte list
TC	terrain conductivity
TCAR	tank closure assessment report
TCL	target compound list
TMP	Tank Management Plan
TPH	total petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank

1.0 STUDY AREA 19, AUTOMOTIVE HOBBY SHOP (BUILDING 7184)

This report contains information gathered as a result of site screening activities conducted at Study Area 19. In March of 1996, after the review of site screening results, the Orlando Partnering Team (OPT) concluded that the site required no further action under the Installation Restoration program.

Activities related to petroleum storage tanks have nearly been completed under the Naval Training Center (NTC), Orlando, Tank Management Plan (TMP) (ABB Environmental Services, Inc. [ABB-ES], 1996).

1.1 STUDY AREA 19, BACKGROUND AND CONDITIONS. This section includes a brief background summary for Study Area 19 (Figure 1). Further details can be found in the Site Screening Plan (ABB-ES, 1995).

Building 7184 was built in 1965 and is a 9,100-square-foot concrete block automobile maintenance and repair facility (Figure 2). It has 11 service bays, air compressors, hydraulic lifts, and an office. A former washrack is located near the east side of the building. Recreational vehicles (RVs) are stored in a fenced grassy field east and south of the study area.

Two underground storage tanks (USTs) (5,000-gallon diesel and 750-gallon waste oil) and two aboveground storage tanks (ASTs) (300-gallon waste oil and 500-gallon fuel oil) have been operated at the facility. The 5,000-gallon heating oil tank was replaced with the 500-gallon AST (heating oil) at the same location. Compliance wells had been installed around both waste oil tanks. Black stains and oil-soaked absorbent granules were present under the ASTs and in the bermed area. Numerous discarded tires, batteries, and paint cans were observed piled in the grassy area in front of the fuel oil AST. A documented spill occurred in the mid-1970s, resulting in a removal action.

The Auto Hobby Shop has a 350-gallon oil-water separator. Interior floor drains in the building and a slot-drain along the outside edge of the bay doors are connected to the sewage distribution system. The oil-water separator was investigated under the NTC, Orlando TMP. Tetrachloroethene (PCE) was initially detected in one groundwater sample at a concentration that exceeded regulatory criteria. When the well was resampled, PCE was not detected and the site was approved by the Florida Department of Environmental Protection (FDEP) for no further action in April 1997.

Two additional USTs were identified in the RV storage area adjacent to the former washrack (Figure 2). Both USTs were removed in October 1996 by Public Works, Pensacola, and no contamination was detected. The closure report, which was submitted to FDEP in March 1997 and recommended clean closure, is still under review.

A wooded area (plantation pines) is located adjacent to the RV storage area (Figure 3). Historical aerial photos showed what may have been areas of disturbed soil in this area. There are shallow depressions in the northwest corner of the wooded area that may have once been trenches. Pieces of discarded machinery and an empty, rusted, open-head 55-gallon drum were found scattered on the edge of the wooded area along the dirt path.

McCOY ANNEX

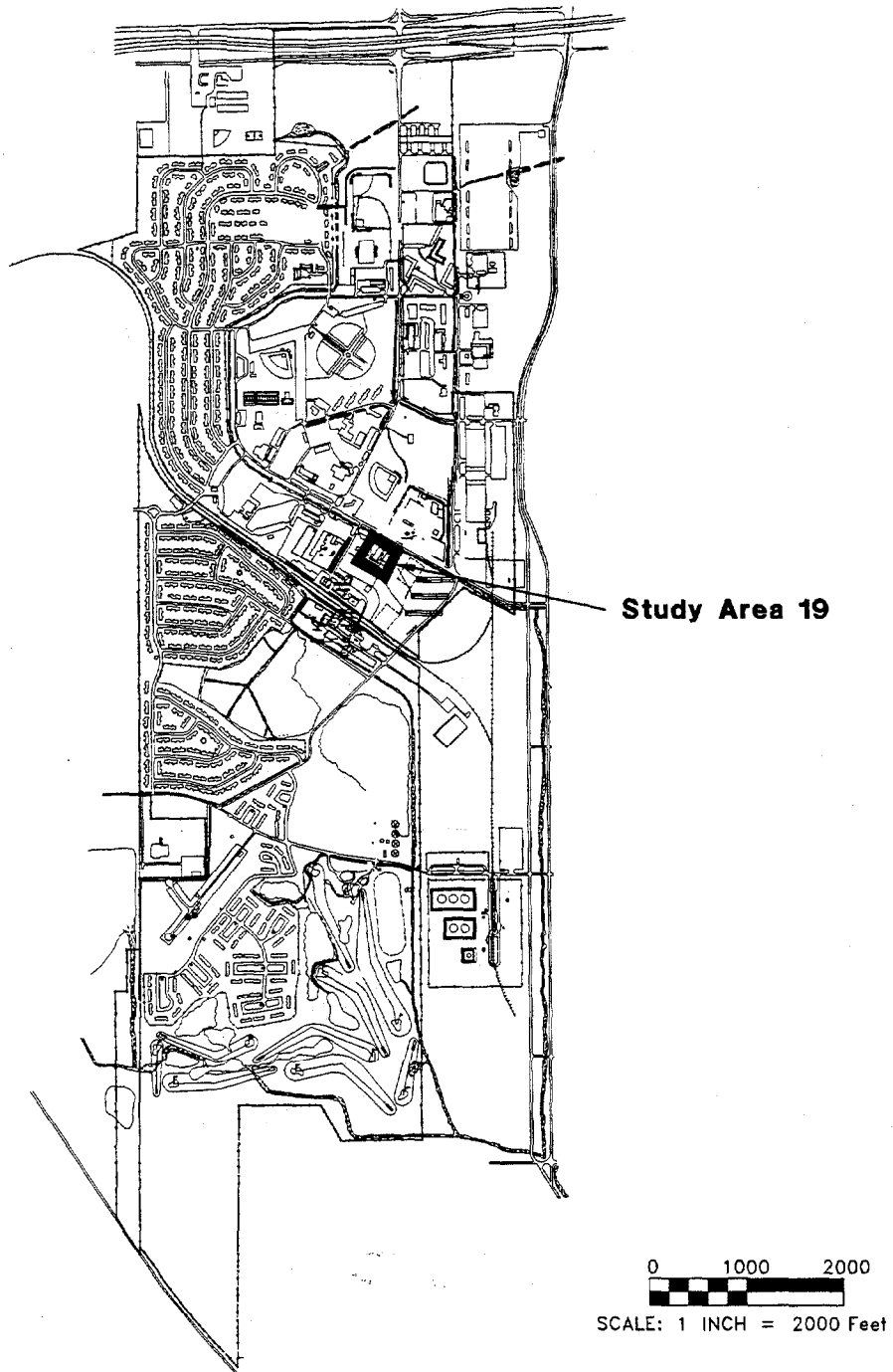
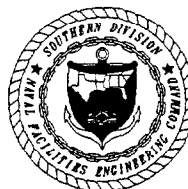


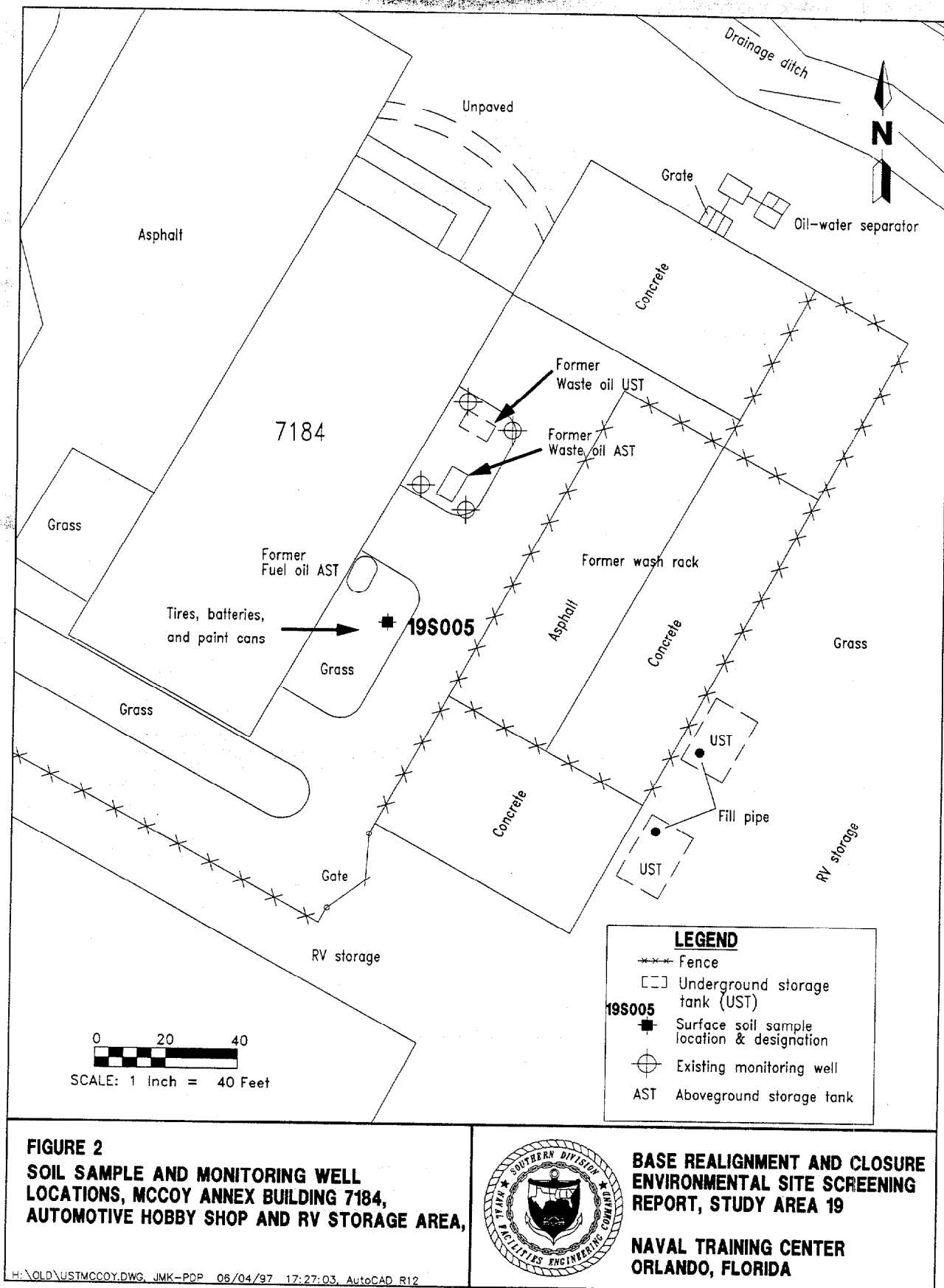
FIGURE 1
LOCATION OF STUDY AREA 19



**BASE REALIGNMENT AND
CLOSURE ENVIRONMENTAL SITE
SCREENING REPORT**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

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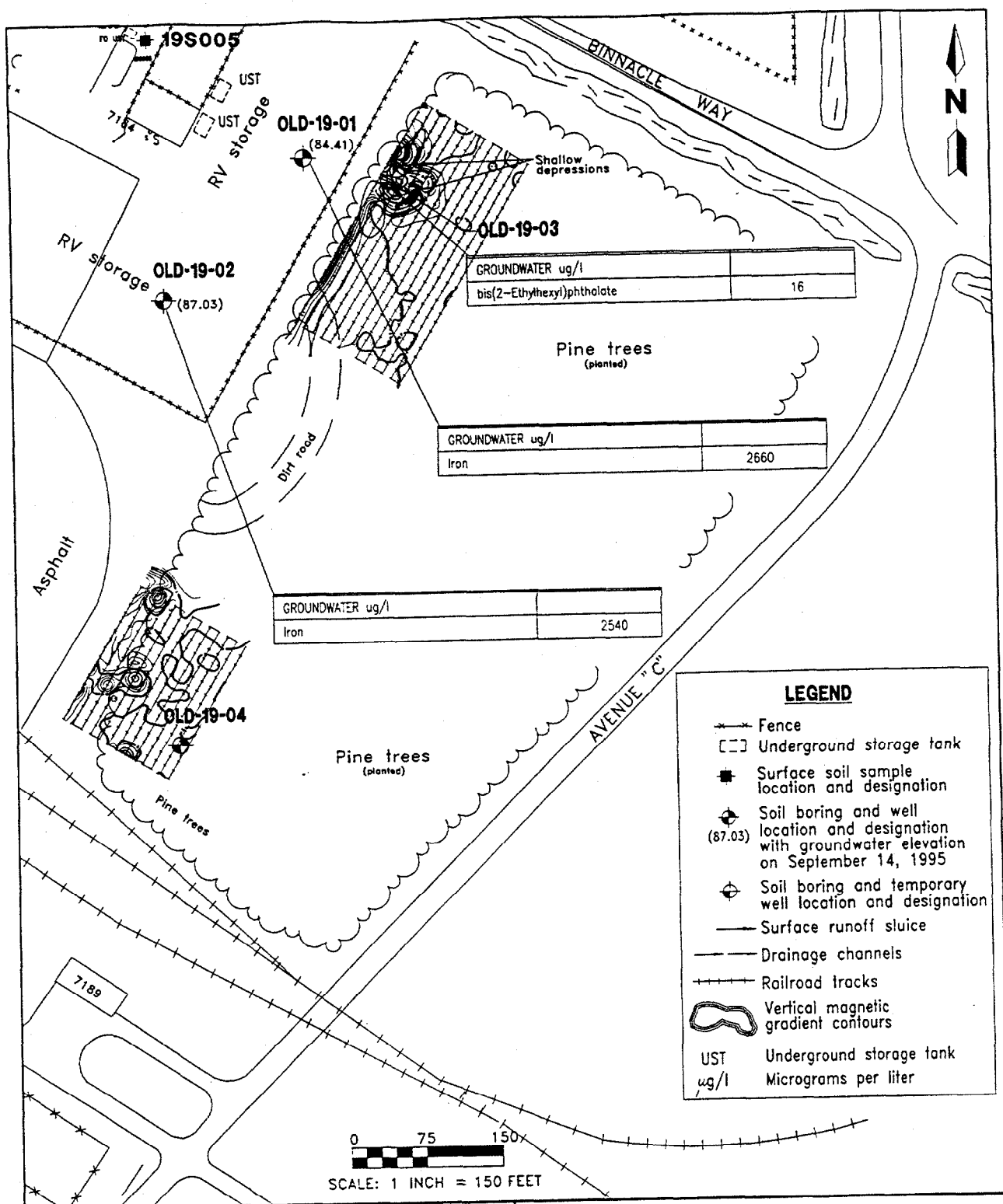


FIGURE 3
GEOPHYSICAL SURVEY AREAS AND
SOIL BORING AND MONITORING WELL LOCATIONS,
WOODED AREA NEAR RV STORAGE, MCCOY ANNEX

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BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING
REPORT, STUDY AREA 19

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

1.2 STUDY AREA 19, INVESTIGATION SUMMARY. The site screening investigations conducted at Study Area 19 are described below.

1.2.1 Geophysical Surveys The site investigation at Study Area 19 consisted of geophysical surveys in the pine tree plantations southeast of Building 7184 to evaluate disturbed soil (noted on aerial photographs) and shallow depressions (noted during a site walkover) that may indicate the area was once used for disposal. The survey was completed with a vertical gradiometer (magnetometer) and terrain conductivity (TC) meter (Geonics EM31D). Measurements were taken on a 10-by-10-foot grid in the areas indicated on Figure 3. A ground penetrating radar (GPR) system was used to further evaluate several magnetic/TC anomalies.

The magnetometer and terrain conductivity surveys in the wooded area southeast of the RV storage area indicated the presence of four anomalies, which were evaluated with GPR (Figure 3). The GPR data were consistent with the presence of shallow metallic objects from 1 to 3 feet below land surface (bls), which may represent sporadic and limited shallow disposal. However, the geophysical data were not consistent with prior landfilling activities. More details on the geophysical survey are presented in Appendix A.

1.2.2 Surface Soil Sampling Discarded tires, batteries, and paint cans were observed in the grassy area southeast of Building 7184 during the October 1994 site walkover; a surface soil sample (19S005, 0 to 1 foot bls) was collected from this area and submitted for total petroleum hydrocarbons (TPH) and full suite Contract Laboratory program (CLP) TPH target compound list (TCL) and target analyte list (TAL) analyses in accordance with U.S. Environmental Protection Agency (USEPA) Level IV data quality objective (DQOs). No flame ionization detector (FID) deflections were noted during sample collection.

1.2.3 Soil Boring Investigation Two soil borings (19B001 and 19B002) were advanced to a depth of approximately 14 feet bls using a hollow-stem auger (HSA) drilling technique. These two borings were located in the RV storage area (Figure 2). Soil samples were collected continuously and field-screened with an FID. No responses above background were observed. A subsurface soil sample was collected from each boring at the water table interface.

Two additional soil borings were advanced via hand auger near the two geophysical anomalies identified in the wooded area (Figure 3). A subsurface soil sample was collected from each boring at the water table interface. No FID responses above background were observed during sample collection.

Four soil samples (one from each boring) were collected and submitted for TPH and full suite CLP TCL and TAL analyses in accordance with USEPA Level IV DQOs.

Soil boring logs are included in Appendix B.

1.2.4 Groundwater Monitoring Well Installation and Sampling Borings 19B001 and 19B002 were completed as monitoring wells OLD-19-01 and OLD-19-02, respectively. Both well screens were installed across the water table.

Temporary wells were installed in the two hand-augered borings. The borings were advanced 2 to 3 feet below the water table. Slotted 2-inch-diameter polyvinyl chloride well screen was lowered into the boring, and a groundwater sample was

collected using the low-flow technique. The well screen was then withdrawn and the boring grouted.

Four groundwater samples (one from each well) were collected and submitted for full suite CLP TCL and TAL analyses plus total suspended solids in accordance with USEPA Level IV DQOs.

Monitoring well installation diagrams for the two permanent wells are included in Appendix B.

1.3 STUDY AREA 19, RESULTS. The results of site screening investigations at Study Area 19 are discussed below. Analytical results from the surface soil, subsurface soil, and groundwater samples collected from Study Area 19 are presented as Positive Hits Tables in Appendix C (Tables C-1 to C-3). A complete set of analytical results for these media is presented in Appendix D. Exceedances of background or regulatory guidance concentrations (shaded on the positive hits tables) are displayed in chem-boxes near their respective explorations on Figure 2.

1.3.1 Surface and Subsurface Soil Analytical Results Butylbenzylphthalate was detected at 160J micrograms per kilogram ($\mu\text{g}/\text{kg}$) in the surface soil collected in the grassy area. This detection, however, does not exceed the residential risk-based concentration (RBC) or soil cleanup goal (SCG) (Table C-1). This compound is a common artifact in the sampling and/or laboratory analytical process and may have been a false positive in this sample. Pesticides 4,4'-dichlorodiphenyltrichloroethane (DDT), alpha-chlordane, and gamma chlordane were detected in surface soil but were all below their corresponding SCG and residential RBCs. Copper, lead, and zinc concentrations in surface soil exceeded the background screening values but were below the corresponding SCG and residential RBCs.

Acetone was detected in two subsurface locations (19B001 and 19B002) but appears to be an artifact of the sampling and/or laboratory analytical process (Table C-2). Inorganics detected above background in subsurface soil samples include barium, magnesium, manganese, potassium, vanadium, and zinc. These inorganic detections, however, do not exceed the residential RBCs or SCGs.

Leachability-based SCG values do not apply, as no organic compounds were present in groundwater above FDEP groundwater guidance concentrations (see below).

1.3.2 Groundwater Analytical Results Bix(2-ethylhexyl)phthalate was detected in groundwater sample 19G003 at 16 micrograms per liter ($\mu\text{g}/\text{l}$), above the Florida and Federal maximum contaminant level of 6 $\mu\text{g}/\text{l}$. However, it appears to be a sampling and/or laboratory artifact as it is highly unlikely that only this compound is contaminating the groundwater without the presence of other phthalates or their degradation products. This sample was collected from a temporary well.

Iron in groundwater samples 19G001 and 19G002 (2,660 and 2,540 $\mu\text{g}/\text{l}$) exceeded the background screening value (1,227 $\mu\text{g}/\text{l}$) and FDEP groundwater secondary standard (300 $\mu\text{g}/\text{l}$) (Table B-3). Secondary standards have been established for Class G-I and G-II aquifers by the State of Florida, largely along Federal guidelines, to

ensure that groundwater meets at least minimum criteria for taste, odor, and color, and does not pose a health risk.

Based on records reviews and interviews, there have been no known site activities that may have contributed to the observed exceedances of the secondary standard for iron in two wells, OLD-19-01 and OLD-19-02. Surface and subsurface soil concentrations of iron did not exceed the background screening concentration.

Analytes exceeding Florida secondary standards should also be compared with RBCs for tapwater published by the USEPA, Region III. The tapwater guidance concentration for iron is 11,000 $\mu\text{g}/\ell$. There were no other TAL metals exceedances, and groundwater parameters measured during sampling were within normal limits: pH varied from 5.25 to 5.30, temperature from 77.0 to 78.8 degrees Fahrenheit, conductivity from 52 to 70 micromhos per centimeter, and turbidity from 4.2 to 32.7 nephelometric turbidity units. ABB-ES concludes that the iron exceeding the secondary standard is naturally occurring, is not related to past site activities, and does not pose a risk to human health or the environment.

1.4 STUDY AREA 19, CONCLUSIONS AND RECOMMENDATIONS. Tank closure assessment reports (TCARs) under the TMP (ABB-ES, 1996) for petroleum storage systems at Building 7184 were completed in May 1996 for the used oil AST, the used oil UST, and the heating oil AST. The former 5,000-gallon heating oil UST was replaced in the same location by the 500-gallon heating oil AST. The field investigation conducted for the AST closure discovered no signs of petroleum contamination in the area. The assessment report for the oil-water separator was approved by FDEP in April 1997 for no further action, and the closure report for the two USTs, which recommends clean closure, is still under review.

Based on available information and site screening data, it is concluded that site screening activities identified no significant soil or groundwater contamination in the various media at Study Area 19. However, future users of this property should be aware that the presence of iron at the measured concentrations may render the groundwater from the surficial aquifer objectionable as a potable or irrigation water source. ABB-ES recommends that Study Area 19 be made eligible for transfer.

The undersigned members of the Base Realignment and Closure Team concur with the findings and recommendations of the preceding investigation.

STUDY AREA 19

Nancy Rodriguez
U.S. Environmental Protection Agency, Region IV

7/17/97
Date

John M. ...
Florida Department of Environmental Protection

7/17/97
Date

Wayne A. ...
U.S. Department of the Navy

7/17/97
Date

REFERENCES

ABB Environmental Services, Inc. (ABB-ES), 1995, Site Screening Plan, Groups I through V Study Areas and Miscellaneous Additional Sites, Naval Training Center (NTC), Orlando, Florida: prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina.

ABB-ES, 1996, Base Realignment and Closure Tank Management Plan, NTC, Orlando, Florida: prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

APPENDIX A

TECHNICAL MEMORANDUM GEOPHYSICAL SURVEYS

NAVAL TRAINING CENTER (NTC)
ORLANDO, FLORIDA

The following is a summary of the significant findings of the geophysical surveys that took place between March 3 and April 14, 1995, at Study Area 19, NTC, Orlando (Figure 1). The geophysical surveys were conducted to evaluate potential subsurface debris disposal and to aid in clearing utilities for the subsurface investigations. The techniques used were magnetometry, terrain conductivity (TC) and ground penetrating radar (GPR).

The magnetic method is a versatile geophysical technique used for evaluating shallow geologic structures and for locating buried manmade objects and buried debris by mapping local distortions in the earth's magnetic field produced by buried magnetic objects (steel and other magnetic materials). Vertical gradient measurements of the earth's magnetic field are often taken during environmental magnetic surveys, as they are more sensitive to the presence of near-surface metal objects than total field values alone.

Terrain conductivity surveys, also referred to as EMI (electromagnetic induction) surveys, have traditionally been used in mineral exploration for tracing conductive ore bodies (i.e., massive sulfides). More recently, conductivity surveys have been used in environmental studies for mapping buried debris and former structures, and for tracing conductive contaminant plumes in groundwater. TC instruments record two parameters, the quadrature phase and the in-phase components of an induced magnetic field. The quadrature-phase component is a measure of the ground conductivity value expressed in millimhos per meter. The in-phase component is significantly more sensitive to metallic objects and is useful for looking for buried tanks and drums and other manmade objects.

The GPR technique uses high frequency radio waves to determine the presence of subsurface objects and structures. The radio wave energy is reflected from surfaces where there is a contrast in the electrical properties of subsurface materials, such as naturally occurring geologic horizons or manmade objects (e.g., buried utilities, tanks, drums). Typical applications for GPR include mapping buried utilities and delineating the boundaries of buried hazardous waste materials and abandoned landfills.

The following is a discussion of the results of this investigation.

STUDY AREA 19 - AUTOMOTIVE HOBBY SHOP (BUILDING 7184)

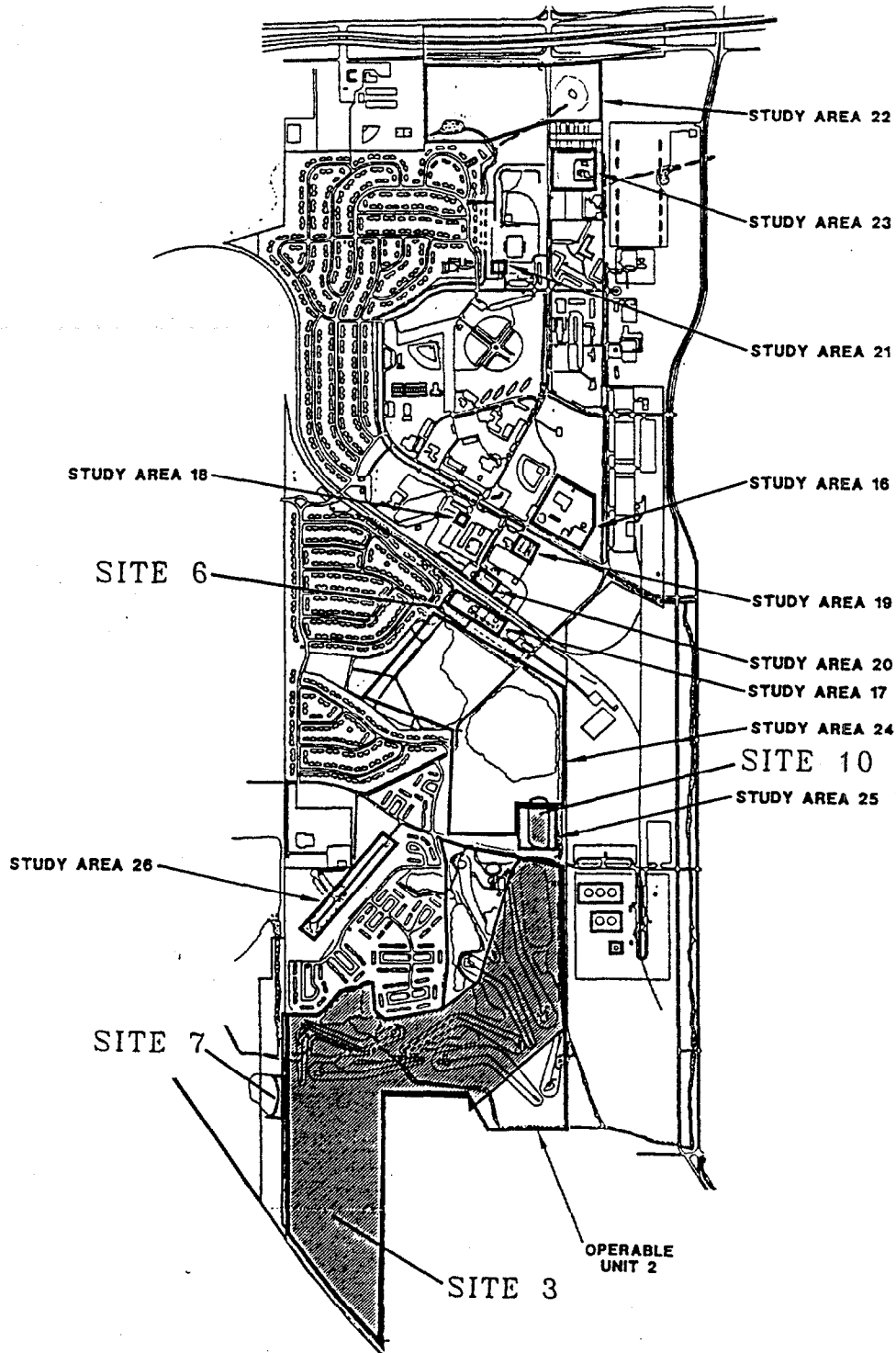
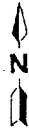
The purpose for conducting geophysical studies at Study Area 19 is to investigate the wooded area adjacent to the site for possible prior landfill activities, paying particular note of shallow depressions and the edge of the wooded area most accessible from the dirt road (Figure 2). A geophysical survey grid with an arbitrary origin and grid north was established in the wooded area east of the RV storage area and Building 7184. Subsequently, a magnetometer and TC survey were completed concurrently in the two rectangular areas shown on Figure 2, a total area of approximately 1.1 acres. A total of 545 data points was acquired on a 10-foot by 10-foot measurement grid with each instrument. Contour data are presented as Figures 3 through 5. Figure 3 presents the vertical magnetic gradient contours, and Figures 4 and 5 present the quadrature (conductivity) and in-phase (equivalent to a metal detector) contours of the magnetic field induced

by the transmitter of the TC instrument. The data indicate the presence of four small- to moderate-sized anomalies. The moderate-sized anomaly at (X=1010, Y=1630) is coincident with a metal pipe and small pile of surface debris. Another smaller anomaly at (X=1025, Y=1050) is noted as being a paved area. Other anomalies were noted at (X=1015, Y=1150) and (X=1070, Y=1000).

GPR traverses were conducted over the four magnetic and/or conductive anomalies noted above (Figure 6). The GPR data for the southern three anomalies indicate the presence of probable metallic objects from 1 to 3 feet below land surface. The GPR signature of the anomaly is not consistent with a large buried steel object like a UST, but there may be areas where surface debris was buried at a shallow depth in discrete areas in the woods.

The geophysical data are not consistent with prior landfilling activities. Magnetic data acquired over landfills are usually quite irregular, unlike the data set acquired in these two adjacent areas.

McCOY ANNEX



0 600 1200
SCALE: 1" = 1200'

FIGURE 1
SITES, ZONES, AND OPERABLE UNITS
CURRENTLY UNDER INVESTIGATION



NAVAL TRAINING CENTER
ORLANDO, FLORIDA

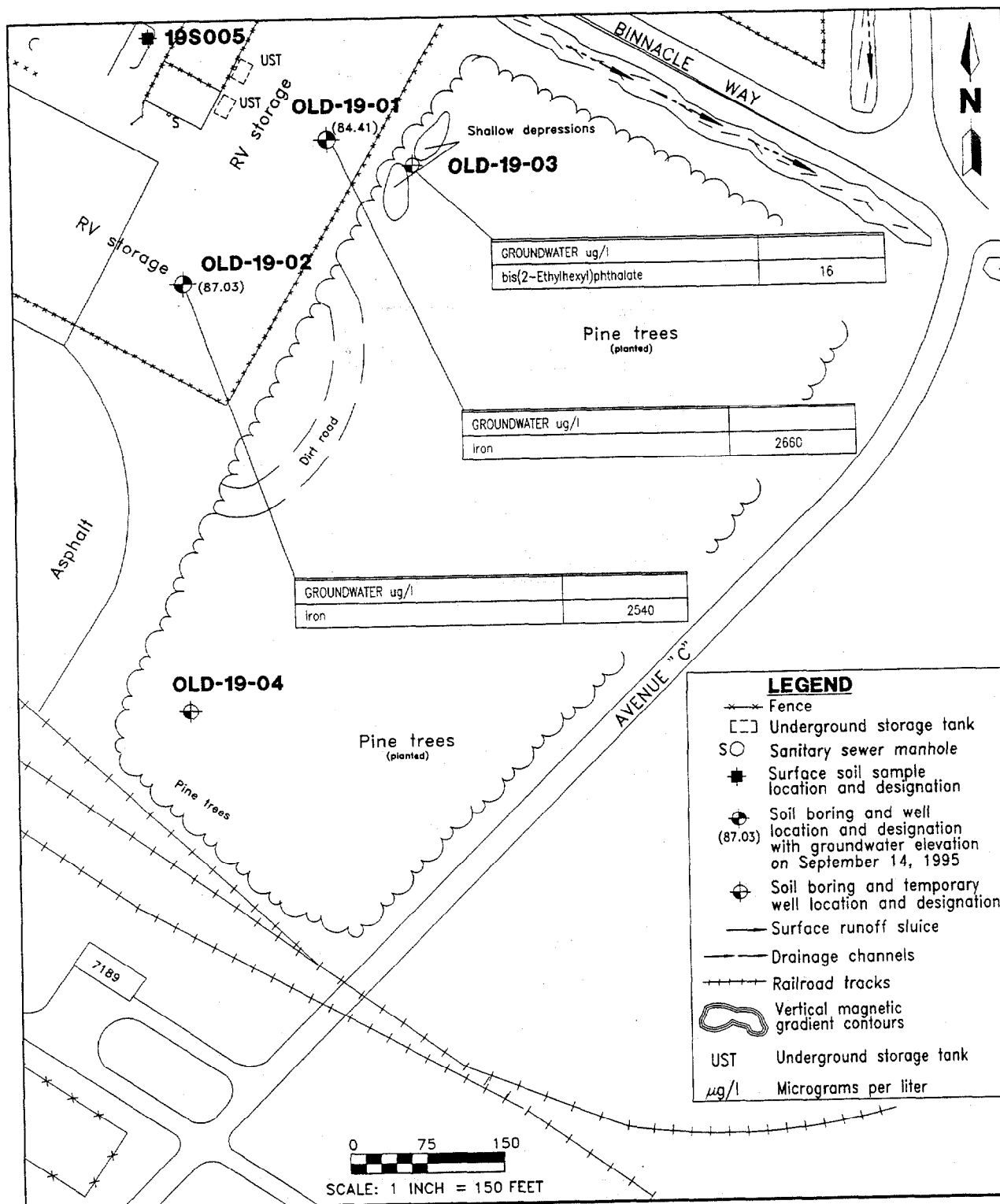
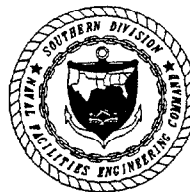
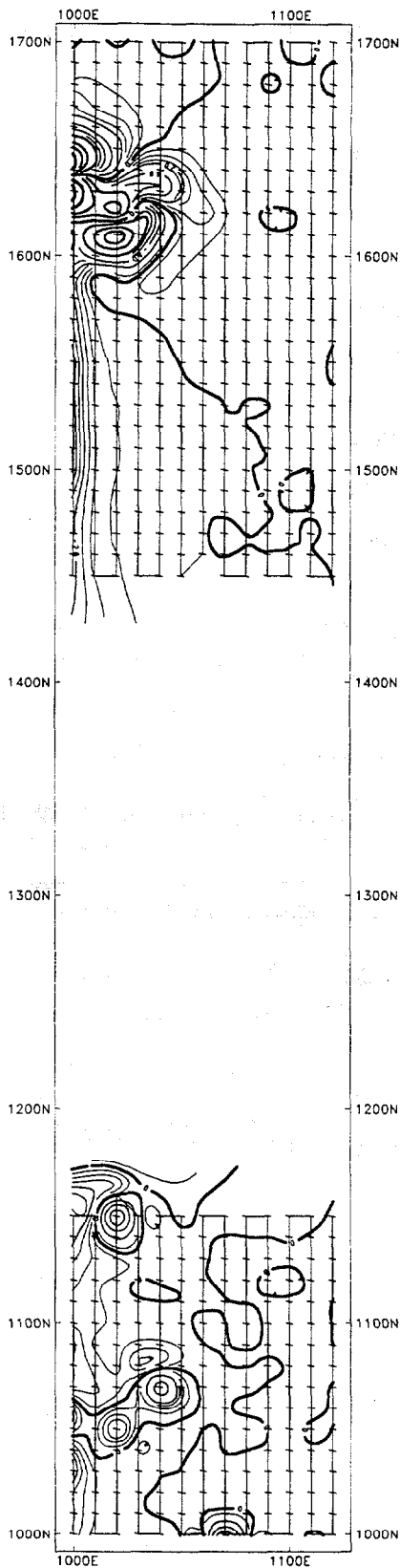


FIGURE 2
GEOPHYSICAL SURVEY AREAS AND
SOIL BORING AND MONITORING WELL LOCATIONS,
WOODED AREA NEAR RV STORAGE, MCCOY ANNEX,
STUDY AREA 19



BASE REALIGNMENT AND
CLOSURE ENVIRONMENTAL SITE
SCREENING REPORT

NAVAL TRAINING CENTER
ORLANDO, FLORIDA



Scale 1:508.0826
 25 0 25 50 75 100
 (feet)

FIGURE 3

SOUTHERN DIVISION
VERTICAL GRADIENT CONTOURS
STUDY AREA 19
GROUP III SITE SCREENING
ABB ENVIRONMENTAL SERVICES, INC.

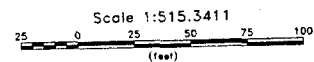
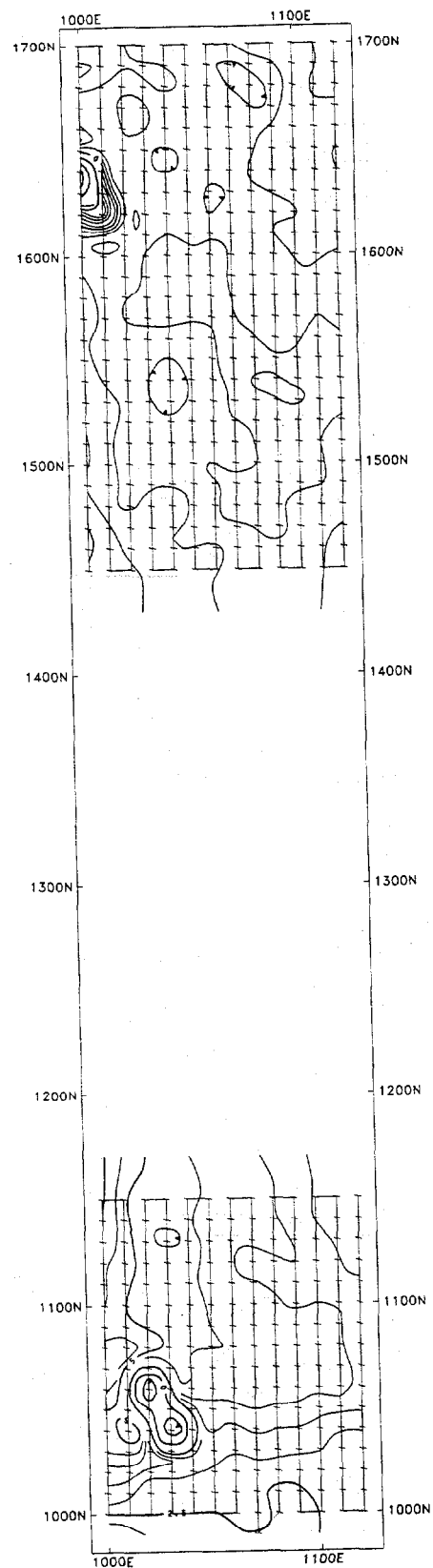
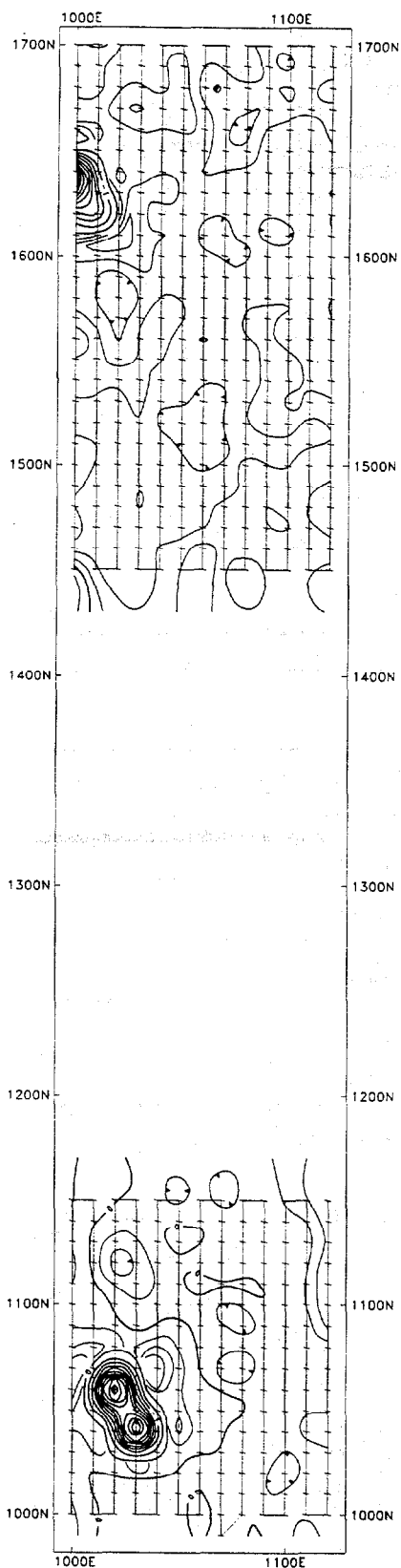


FIGURE 4

SOUTHERN DIVISION
QUADRATURE (TC) CONTOURS
STUDY AREA 19
GROUP III SITE SCREENING
ABB ENVIRONMENTAL SERVICES, INC.



Scale 1:515.3411
 25 0 25 50 75 100
 (feet)

FIGURE 5

SOUTHERN DIVISION
INPHASE (TC) CONTOURS
STUDY AREA 19
GROUP III SITE SCREENING
ABB ENVIRONMENTAL SERVICES, INC.

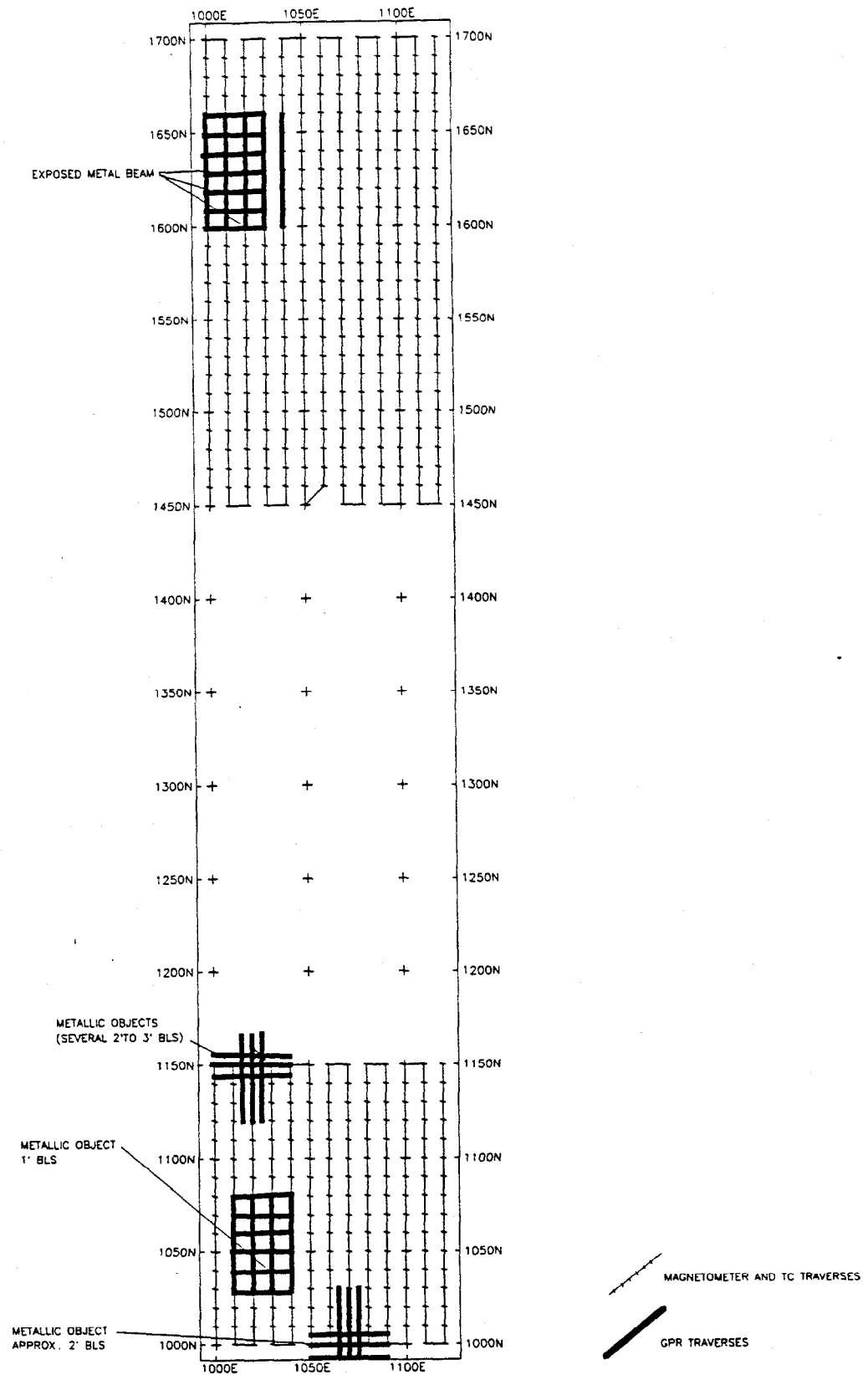


FIGURE 6

SOUTHERN DIVISION
MAGNETOMETER, TC, AND GPR SURVEYS
STUDY AREA 19
GROUP III SITE SCREENING
ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX B

BORING LOGS AND MONITORING WELL INSTALLATION DIAGRAMS

Project: BRAC NTC, Group III Site Screening		Well ID: S.A. 19		Boring ID: OLD-19-01	
Client: SOUTHDIIVNAVFACENGCOM		Contractor: GEOTEK		Job No.: CTO-107	
Northing:		Easting:		Date started: 05/11/95	
Method: Hollow stem auger		Casing dia.: 6.25"		Screened int.: 10 ft.	
TOC elev.: Ft.		Type of OVM: Porta FID		Protection level: D	
Rep.: M. Hawes		Well development date: PVC		Dpth to 9 Ft.	
				Site:	

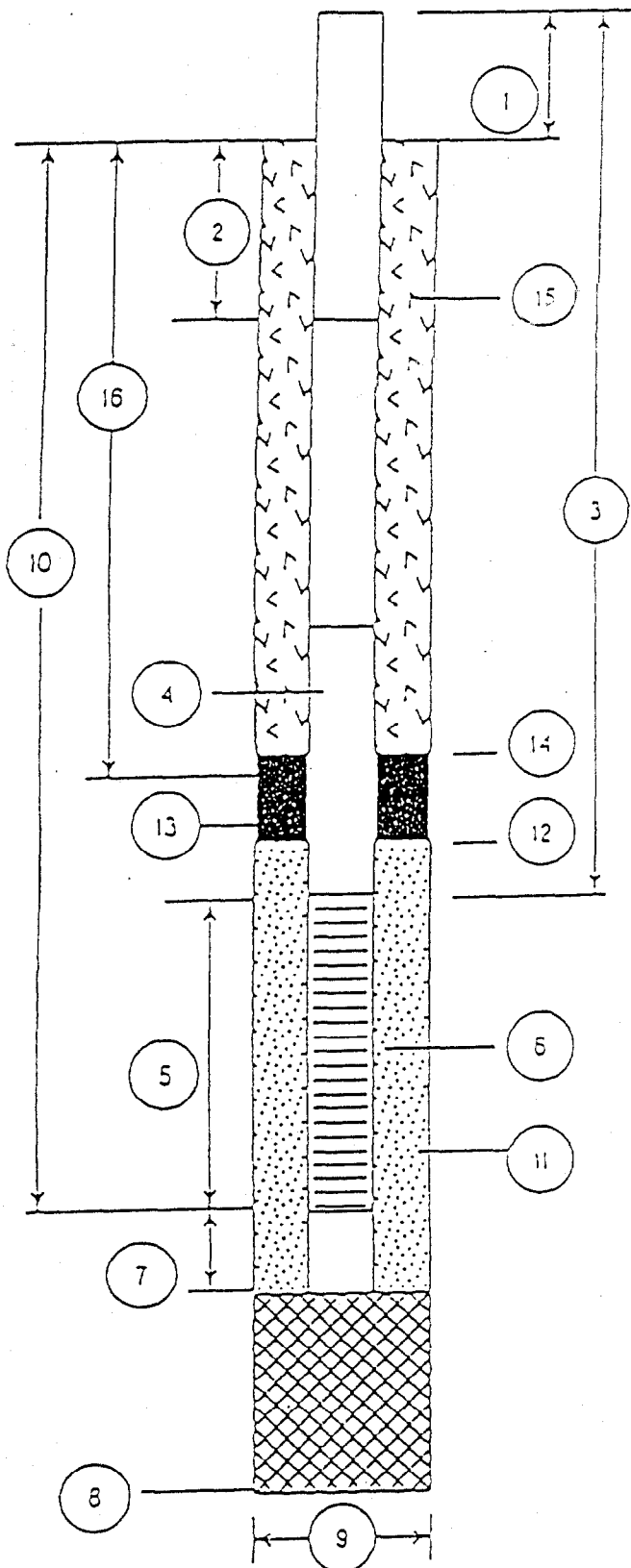
Depth Ft.	Laboratory Sample ID.	Sample Recovery	Headspace (opm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
				SAND: Gray, silty, fine-medium grain, good sorting		SM		
				QUARTZ SAND: Light brown, fine-medium grain, trace silt and organics		SP		
			0	QUARTZ SAND: Dark brown, silty, fine, trace of organics/roots, good sorting, good to moderate rounding		SM	2.2	
5		70%	0				4.5	
		70%	0				8.8	
	19B00101 (8-10')		0				7.9	
		80%	0				15.16	
10			0				17.18	
		80%	0				5.6	
			0				7.8	
		40%	0				7.7	
							6.7	
15								

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: OLD-19-01

DATE OF INSTALLATION: 5/11/95



1. Height of Casing above ground: 0

2. Depth to first Coupling: 3'

Coupling Interval Depth: 10'

3. Total Length of Riser Pipe: 3'

4. Type of Riser Pipe: 2" ϕ Schedule 40 PVC

5. Length of Screen: 10'

6. Type of Screen: 2" ϕ schedule 40 PVC .010 slot screen

7. Length of Sump: 6"

8. Total Depth of Boring: 14'

9. Diameter of Boring: 6.25"

10. Depth to Bottom of Screen: 12.5"

11. Type of Screen Filter: 20/30 Silica Sand

Quantity Used: 550 lb Size:

12. Depth to Top of Filter: 2'

13. Type of Seal: Bentonite

Quantity Used: 20 lb

14. Depth to Top of Seal: 1.5'




15. Type of Grout: Portland Cement

Grout Mixture:

Method of Placement: Plumb

16. Tot. Depth of 6 in. Steel Casing: N/A

Project: BRAC NTC, Group III Site Screening		Well ID: S.A. 19		Boring ID: OLD-19-02	
Client: SOUTHDIYNAVFACENGCOM		Contractor: GEOTEK		Job No.: CTO-107	
Northing:		Easting:		Date started: 05/11/95	
Method: Hollow stem auger		Casing dia.: 6.25"		Screened int.: 10 ft.	
TOC elev.: Fl.		Type of OVM: Porta FID		Protection level: D	
ABB Rep.: M. Hawes		Well development date: PVC		Dpth to ∇ 8 Ft.	
				Site:	

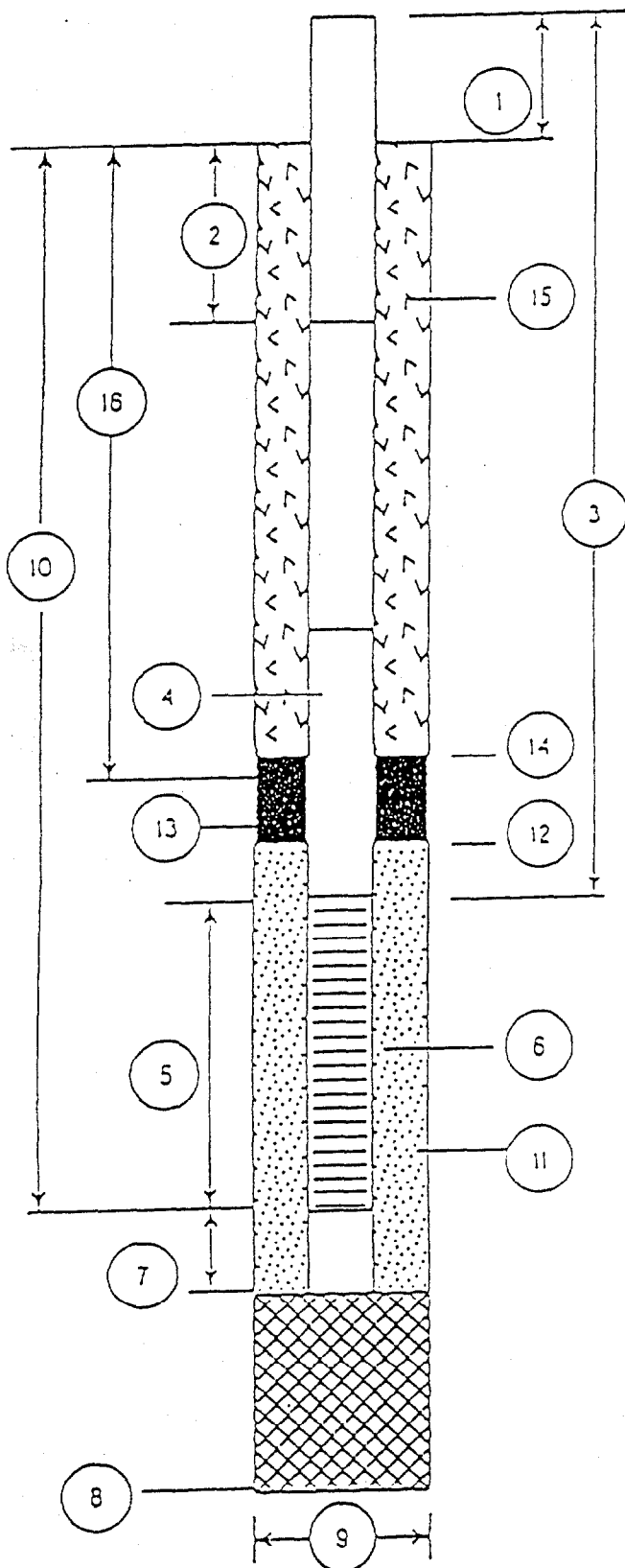
Depth Ft.	Laboratory Sample ID.	Sample Recovery	Headspace (ppm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
				QUARTZ SAND: Gray, fine grain, good sorting		SM		
				QUARTZ SAND: Light brown to brown, fine to medium		SP		
			0	QUARTZ SAND: Brown, fine grain, good sorting, good to moderate rounding			3,4	
5		80%	0				7,7	
	19B00201 (6-8')		0				9,12	
		100%	0				11,7	
			0				4,4	
		80%	0				6,5	
10			0				4,5	
		80%	0				3,8	
			0				4,4	
		90%					5,8	
15								

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: 060-19-02

DATE OF INSTALLATION: 5/11/95



1. Height of Casing above ground: 0

2. Depth to first Coupling: 3'

Coupling Interval Depths: 10'

3. Total Length of Riser Pipe: 3'

4. Type of Riser Pipe: 2" ϕ Schedule 40 PVC

5. Length of Screen: 10'

6. Type of Screen: 2" ϕ Schedule 40 PVC .010 slot screen

7. Length of Sump: 6"

8. Total Depth of Boring: 14'

9. Diameter of Boring: 6.25"

10. Depth to Bottom of Screen: 12.5'

11. Type of Screen Filter: 20/30 Silica Sand

Quantity Used: 450 lb Size:

12. Depth to Top of Filter: 2'

13. Type of Seal: Bentonite

Quantity Used: 20 lb

14. Depth to Top of Seal: 1.5'

15. Type of Grout: Portland Cement

Grout Mixture:

Method of Placement: Tremie

16. Tot. Depth of 6 in. Steel Casing: N/A

APPENDIX C

POSITIVE HITS TABLES

Appendix C

Table C-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 19

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening ¹	SCG ²	RBC ³ for Residential Soil	RBC ³ for Industrial Soil	19S00500
Sampling Date					4/11/95
Feet bls					1
Semivolatile Organics, ug/kg					
Butylbenzylphthalate		15,000,000	16,000,000 n	410,000,000	160 J
Pesticides/PCBs, ug/kg					
4,4'-DDT		3,100	1,900 c	17,000 c	3.9
alpha-Chlordane		800	490 c	4,400 c	8.4
gamma-Chlordane		800	490 c	4,400 c	8.2
Inorganics, mg/kg					
Aluminum	4,870	75,000	78,000 n	1,000,000 n	914 J
Arsenic	1.9	0.8	0.43 c/23 n	3.8 c/610 n	0.73 J
Barium	21.6	5,200	5,500 n	140,000 n	11.4 J
Beryllium	0.46	0.2	0.15	1.3	0.02 B
Calcium	33,568	ND	1,000,000	1,000,000	1,150 J
Chromium	7.7	290	390 n	10,000 n	3.2 J
Copper	2.6	ND	3,100 n	82,000 n	6.1
Iron	843	ND	23,000 n	610,000 n	515 J
Lead	21.3	500	400	400	37.8
Magnesium	381	ND	460,468	460,468	35.7 J
Manganese	10.8	370	1800 n	47,000 n	3.9 J
Mercury	0.05	23	23 n	610 n	0.03 B
Vanadium	4.9	490	550 n	14,000 n	0.61 B
Zinc	4.6	23,000	23,000 n	610,000 n	296 J
General chemistry, mg/kg					
Total Petroleum Hydrocarbons	ND	ND	ND	ND	34.6

Appendix C
Table C-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 19

Naval Training Center, Orlando
Orlando, FL

NOTES:

¹ The background screening value is twice the average of detected concentrations for inorganic analytes.

² SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995). Arsenic value is as revised in Applicability of Soil Cleanup Goals for Florida (FDEP memorandum, January 19, 1996). Values indicated are from a residential scenario.

Chromium values are for Chromium VI.

³ RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium), screening values were derived based on recommended daily allowances (RDAs).

RBC for alpha and gamma-chlordane are based on chlordane.

n = noncarcinogenic pathway

c = carcinogenic pathway

ND = Not determined.

bls = below land surface

DDT = dichlorodiphenyltrichloroethane.

mg/kg = milligrams per kilogram.

ug/kg = micrograms per kilogram.

PCB = polychlorinated biphenyl.

OSWER = Office of Solid Waste and Emergency Response.

USEPA = U.S. Environmental Protection Agency.

B = Reported concentration is between the instrument detection limit (IDL) and Contract Required Detection Limit (CRDL).

J = Reported concentration is an estimated quantity.

All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (ug/kg) soil dry weight.

Blank space indicates analyte/compound was not detected at the reporting limit.

Appendix C

Table C-2. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 19

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening ¹	SCG ²	RBC ³ for Residential Soil	RBC ³ for Industrial Soil	19B00101	19B00201	19B00301	19B00401
Sampling Date					5/11/95	5/11/95	5/31/95	5/31/95
Feet bls					8	6	9.5	5.5
Volatile Organics, ug/kg								
Acetone		NA	7,800,000 n	200,000,000 n	38	30		
Inorganics, mg/kg								
Aluminum	11,130	NA	78,000 n	1,000,000 n	6,960 J	4880 J	5,240 J	2,590 J
Arsenic	2.0	NA	0.43 c/23 n	3.8 c/610 n	0.67 B	0.64 B		
Barium	11.3	NA	5,500	140,000 n	32.1 J	7 J	24.2 B	7 B
Beryllium	0.18	NA	0.15 c	1.3 c	0.07 J	0.04 J		
Calcium	321	NA	1,000,000	1,000,000	165 J	45.1 J	136 B	275 B
Chromium	11.3	NA	390 n	10,000 n	8.2	4.7	5.6	1.9 B
Cobalt	1.3	NA	4,700,000 n	120,000,000	0.74 B			
Copper	2.8	NA	3,100 n	82,000 n	0.5 B			
Iron	829	NA	23,000 n	610,000 n	370 J	213 J	398 J	165 J
Lead	7.0	NA	400	400		3.1 J	2.6 J	4.9 J
Magnesium	38.9	NA	460,468	460,468	116 B	50.1 B	134 B	23.1 B
Manganese	0.69	NA	1,800 n	47,000 n	1.2 B	0.9 B	1.3 B	0.46 B
Mercury	0.12	NA	23 n	610 n	0.05			
Potassium		NA	297,016	297,016	205 B			
Vanadium	5.9	NA	550 n	14,000 n	5.5 B	7 B	5.5 B	4.2 B
Zinc	0.66	NA	23,000 n	610,000 n	0.74 B	0.65 B	1.3 B	0.94 B
General chemistry, mg/kg								
Total Petroleum Hydrocarbons	ND	NA	ND	ND	20.2	47.8	31.9	4.9

Appendix C

Table C-2. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 19

Naval Training Center, Orlando
Orlando, FL

NOTES:

¹ The background screening value is twice the average of detected concentrations for inorganic analytes.

² SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995).

³ RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium, and potassium) screening values were derived based on recommended daily allowances (RDAs).

n = noncarcinogenic pathway

c = carcinogenic pathway

NA = Not applicable.

ND = Not determined.

bls = below land surface

mg/kg = milligrams per kilogram.

ug/kg = micrograms per kilogram.

PCB = polychlorinated biphenyl.

OSWER = Office of Solid Waste and Emergency Response.

USEPA = U.S. Environmental Protection Agency.

B = Reported concentration is between the instrument detection limit (IDL) and Contract Required Detection Limit (CRDL).

J = Reported concentration is an estimated quantity.

All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (ug/kg) soil dry weight.

Blank space indicates analyte/compound was not detected at the reporting limit.

Appendix C

Table C-3. Summary of Positive Detections in Groundwater Analytical Results, Study Area 19

Naval Training Center, Orlando
Orlando, FL

Well ID						OLD-19-01	OLD-19-02	OLD-19-03	OLD-19-04
Identifier	Background Screening ¹	FDEPG	FEDMCL	RBC ² for Tap Water		19G00101	19G00201	19G00301	19G00401
Sampling Date						5/31/95	5/31/95	5/31/95	5/31/95
Semivolatile Organics, ug/L									
bis(2-Ethylhexyl)phthalate		6 ⁶	6	4.8 c				16	
Inorganics, ug/L									
Aluminum	4,067	200 ³	ND	37,000 n		961	3,780	805	1,840
Arsenic	5	50 ⁵	50	0.045 c/11 n			1.9 J		
Barium	31.4	2,000 ⁵	2,000	2,600 n		9.5 J	16.4 J	12 J	14.7 J
Calcium	36,830	ND	ND	1,000,000		1,470 B	1,550 B	11,000	86,400
Iron	1,227	300 ³	ND	11,000 n		2,660	2,540	170	251
Lead	4	15 ⁵	15	15			1.7 B		
Magnesium	4,560	ND	ND	118,807		2,040 B	2,860 B	1,200 B	948 B
Manganese	17	50 ³	ND	840 n		6.6 B	4.3 B	0.7 B	1 B
Potassium	5,400	ND	ND	297,016			631 J	726 J	525 J
Sodium	18,222	160,000 ⁵	ND	396,022		4,400 B	1,670 B	1,490 B	6,770
Vanadium	20.6	49 ⁴	ND	260 n		7.9 B	10.6 B		39.8 B
Zinc	4	5,000 ³	ND	11,000 n		7 B	4.8 B	1.4 B	3 B
General chemistry, mg/L									
Total Suspended Solids	ND	ND	ND	ND		9	11	4	47

Appendix C
Table C-3. Summary of Positive Detections in Groundwater Analytical Results, Study Area 19

Naval Training Center, Orlando
Orlando, FL

NOTES:

¹ Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.

² RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for lead is not available, value is treatment technology action limit for lead in drinking water distribution system identified in Drinking Water Standards and Health Advisories (USEPA, 1995). For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances (RDAs).

³ Secondary Standard.

⁴ Systemic Toxicant

⁵ Primary Standard

⁶ Organoleptic

n = noncarcinogenic pathway

c = carcinogenic pathway

ND = Not determined.

ID = identifier

USEPA = U.S. Environmental Protection Agency.

FDEPG = Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994.

FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, October 1996.

B = Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).

J = Reported concentration is an estimated quantity.

ug/l = micrograms per liter.

mg/l = milligrams per liter.

Bold/shaded numbers indicate exceedance of groundwater guidance and background.

Blank space indicates analyte/compound was not detected at the reporting limit.

APPENDIX D
ANALYTICAL RESULTS

Appendix D

Table D-1. Summary of Surface Soil Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19S00500
Lab ID	G7316009
Sampling Date	11-Apr-95
Volatile organics, ug/kg	
1,1,1-Trichloroethane	11 U
1,1,2,2-Tetrachloroethane	11 U
1,1,2-Trichloroethane	11 U
1,1-Dichloroethane	11 U
1,1-Dichloroethene	11 U
1,2-Dichloroethane	11 U
1,2-Dichloroethene (total)	11 U
1,2-Dichloropropane	11 U
2-Butanone	11 U
2-Hexanone	11 U
4-Methyl-2-pentanone	11 U
Acetone	11 U
Benzene	11 U
Bromodichloromethane	11 U
Bromoform	11 U
Bromomethane	11 U
Carbon disulfide	11 U
Carbon tetrachloride	11 U
Chlorobenzene	11 U
Chloroethane	11 U
Chloroform	11 U
Chloromethane	11 U
cis-1,3-Dichloropropene	11 U
Dibromochloromethane	11 U
Ethylbenzene	11 U
Methylene chloride	11 U
Styrene	11 U
Tetrachloroethene	11 U
Toluene	11 U
trans-1,3-Dichloropropene	11 U
Trichloroethene	11 U
Vinyl chloride	11 U
Xylene (total)	11 U
Semivolatile organics, ug/kg	
1,2,4-Trichlorobenzene	370 U
1,2-Dichlorobenzene	370 U
1,3-Dichlorobenzene	370 U
1,4-Dichlorobenzene	370 U
2,2'-oxybis(1-Chloropropane)	370 U
2,4,5-Trichlorophenol	920 U
2,4,6-Trichlorophenol	370 U
2,4-Dichlorophenol	370 U
2,4-Dimethylphenol	370 U
2,4-Dinitrophenol	920 U
2,4-Dinitrotoluene	370 U
2,6-Dinitrotoluene	370 U
2-Chloronaphthalene	370 U
2-Chlorophenol	370 U
2-Methylnaphthalene	370 U
2-Methylphenol	370 U
2-Nitroaniline	920 U

Appendix D
Table D-1. Summary of Surface Soil Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19S00500
Lab ID	G7316009
Sampling Date	11-Apr-95
2-Nitrophenol	370 U
3,3'-Dichlorobenzidine	370 U
3-Nitroaniline	920 U
4,6-Dinitro-2-methylphenol	920 U
4-Bromophenyl-phenylether	370 U
4-Chloro-3-methylphenol	370 U
4-Chloroaniline	370 U
4-Chlorophenyl-phenylether	370 U
4-Methylphenol	370 U
4-Nitroaniline	920 U
4-Nitrophenol	920 U
Acenaphthene	370 U
Acenaphthylene	370 U
Anthracene	370 U
Benzo(a)anthracene	370 U
Benzo(a)pyrene	370 U
Benzo(b)fluoranthene	370 U
Benzo(g,h,i)perylene	370 U
Benzo(k)fluoranthene	370 U
bis(2-Chloroethoxy)methane	370 U
bis(2-Chloroethyl)ether	370 U
bis(2-Ethylhexyl)phthalate	370 U
Butylbenzylphthalate	160 J
Carbazole	370 U
Chrysene	370 U
Di-n-butylphthalate	370 U
Di-n-octylphthalate	370 U
Dibenz(a,h)anthracene	370 U
Dibenzofuran	370 U
Diethylphthalate	370 U
Dimethylphthalate	370 U
Fluoranthene	370 U
Fluorene	370 U
Hexachlorobenzene	370 U
Hexachlorobutadiene	370 U
Hexachlorocyclopentadiene	370 U
Hexachloroethane	370 U
Indeno(1,2,3-cd)pyrene	370 U
Isophorone	370 U
N-Nitroso-di-n-propylamine	370 U
N-Nitrosodiphenylamine (1)	370 U
Naphthalene	370 U
Nitrobenzene	370 U
Pentachlorophenol	920 U
Phenanthrene	370 U
Phenol	370 U
Pyrene	370 U
Pesticides/PCBs, ug/kg	
4,4'-DDD	3.7 U
4,4'-DDE	3.7 U
4,4'-DDT	3.9
Aldrin	1.9 U

Appendix D
Table D-1. Summary of Surface Soil Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19S00500
Lab ID	G7316009
Sampling Date	11-Apr-95
alpha-BHC	1.9 UJ
alpha-Chlordane	8.4
Aroclor-1016	37 U
Aroclor-1221	74 U
Aroclor-1232	37 U
Aroclor-1242	37 U
Aroclor-1248	37 U
Aroclor-1254	74 U
Aroclor-1260	74 U
beta-BHC	1.9 U
delta-BHC	1.9 U
Dieldrin	3.7 U
Endosulfan I	1.9 U
Endosulfan II	3.7 U
Endosulfan sulfate	3.7 U
Endrin	3.7 U
Endrin aldehyde	3.7 U
Endrin ketone	3.7 U
gamma-BHC (Lindane)	1.9 U
gamma-Chlordane	8.2
Heptachlor	1.9 U
Heptachlor epoxide	1.9 U
Methoxychlor	19 U
Toxaphene	190 U
Inorganics, ug/kg	
Aluminum	914 J
Antimony	6.5 U
Arsenic	0.73 J
Barium	11.4 J
Beryllium	0.02 B
Cadmium	0.68 U
Calcium	1150 J
Chromium	3.2 J
Cobalt	0.63 U
Copper	6.1
Iron	515 J
Lead	37.8
Magnesium	35.7 J
Manganese	3.9 J
Mercury	0.03 B
Nickel	3.1 U
Potassium	97.1 U
Selenium	0.5 U
Silver	0.57 U
Sodium	3.7 U
Thallium	0.4 U
Vanadium	0.61 B
Zinc	296 J
General Chemistry, mg/kg	
Total Petroleum Hydrocarbons	34.6

Appendix D
Table D-2 Summary of Subsurface Soil Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19B00101	19B00201	19B00301	19B00401
Lab ID	G7550001	G7550002	G7717002	G7717001
Sampling Date	11-May-95	11-May-95	31-May-95	31-May-95
2-Nitrophenol	400 U	390 U	420 U	400 U
3,3'-Dichlorobenzidine	400 U	390 U	420 U	400 U
3-Nitroaniline	990 U	980 U	1000 U	1000 U
4,6-Dinitro-2-methylphenol	990 U	980 U	1000 U	1000 U
4-Bromophenyl-phenylether	400 U	390 U	420 U	400 U
4-Chloro-3-methylphenol	400 U	390 U	420 U	400 U
4-Chloroaniline	400 U	390 U	420 U	400 U
4-Chlorophenyl-phenylether	400 U	390 U	420 U	400 U
4-Methylphenol	400 U	390 U	420 U	400 U
4-Nitroaniline	990 U	980 U	1000 U	1000 U
4-Nitrophenol	990 U	980 U	1000 U	1000 U
Acenaphthene	400 U	390 U	420 U	400 U
Acenaphthylene	400 U	390 U	420 U	400 U
Anthracene	400 U	390 U	420 U	400 U
Benzo(a)anthracene	400 U	390 U	420 U	400 U
Benzo(a)pyrene	400 U	390 U	420 U	400 U
Benzo(b)fluoranthene	400 U	390 U	420 U	400 U
Benzo(g,h,i)perylene	400 U	390 U	420 U	400 U
Benzo(k)fluoranthene	400 U	390 U	420 U	400 U
bis(2-Chloroethoxy)methane	400 U	390 U	420 U	400 U
bis(2-Chloroethyl)ether	400 U	390 U	420 U	400 U
bis(2-Ethylhexyl)phthalate	400 U	390 U	420 U	400 U
Butylbenzylphthalate	400 U	390 U	420 U	400 U
Carbazole	400 U	390 U	420 U	400 U
Chrysene	400 U	390 U	420 U	400 U
Di-n-butylphthalate	400 U	390 U	420 U	400 U
Di-n-octylphthalate	400 U	390 U	420 U	400 U
Dibenz(a,h)anthracene	400 U	390 U	420 U	400 U
Dibenzofuran	400 U	390 U	420 U	400 U
Diethylphthalate	400 U	390 U	420 U	400 U
Dimethylphthalate	400 U	390 U	420 U	400 U
Fluoranthene	400 U	390 U	420 U	400 U
Fluorene	400 U	390 U	420 U	400 U
Hexachlorobenzene	400 U	390 U	420 U	400 U
Hexachlorobutadiene	400 U	390 U	420 U	400 U
Hexachlorocyclopentadiene	400 U	390 U	420 U	400 U
Hexachloroethane	400 U	390 U	420 U	400 U
Indeno(1,2,3-cd)pyrene	400 U	390 U	420 U	400 U
Isophorone	400 U	390 U	420 U	400 U
N-Nitroso-di-n-propylamine	400 U	390 U	420 U	400 U
N-Nitrosodiphenylamine (1)	400 U	390 U	420 U	400 U
Naphthalene	400 U	390 U	420 U	400 U
Nitrobenzene	400 U	390 U	420 U	400 U
Pentachlorophenol	990 U	980 U	1000 U	1000 U
Phenanthrene	400 U	390 U	420 U	400 U
Phenol	400 U	390 U	420 U	400 U
Pyrene	400 U	390 U	420 U	400 U
Pesticides/PCBs, ug/kg				
4,4'-DDD	NA	NA	4.2 U	4 U
4,4'-DDE	NA	NA	4.2 U	4 U
4,4'-DDT	NA	NA	4.2 U	4 U
Aldrin	NA	NA	2.2 U	2.1 U

Appendix D
Table D-2 Summary of Subsurface Soil Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19B00101	19B00201	19B00301	19B00401
Lab ID	G7550001	G7550002	G7717002	G7717001
Sampling Date	11-May-95	11-May-95	31-May-95	31-May-95
Volatile organics, ug/kg				
1,1,1-Trichloroethane	12 U	12 U	13 U	13 U
1,1,2,2-Tetrachloroethane	12 U	12 U	13 U	13 U
1,1,2-Trichloroethane	12 U	12 U	13 U	13 U
1,1-Dichloroethane	12 U	12 U	13 U	13 U
1,1-Dichloroethene	12 U	12 U	13 U	13 U
1,2-Dichloroethane	12 U	12 U	13 U	13 U
1,2-Dichloroethene (total)	12 U	12 U	13 U	13 U
1,2-Dichloropropane	12 U	12 U	13 U	13 U
2-Butanone	12 U	12 U	13 U	13 U
2-Hexanone	12 U	12 U	13 U	13 U
4-Methyl-2-pentanone	12 U	12 U	13 U	13 U
Acetone	38	30	13 U	13 U
Benzene	12 U	12 U	13 U	13 U
Bromodichloromethane	12 U	12 U	13 U	13 U
Bromoform	12 U	12 U	13 U	13 U
Bromomethane	12 U	12 U	13 U	13 U
Carbon disulfide	12 U	12 U	13 U	13 U
Carbon tetrachloride	12 U	12 U	13 U	13 U
Chlorobenzene	12 U	12 U	13 U	13 U
Chloroethane	12 U	12 U	13 U	13 U
Chloroform	12 U	12 U	13 U	13 U
Chloromethane	12 U	12 U	13 U	13 U
cis-1,3-Dichloropropene	12 U	12 U	13 U	13 U
Dibromochloromethane	12 U	12 U	13 U	13 U
Ethylbenzene	12 U	12 U	13 U	13 U
Methylene chloride	12 U	12 U	13 U	13 U
Styrene	12 U	12 U	13 U	13 U
Tetrachloroethene	12 U	12 U	13 U	13 U
Toluene	12 U	12 U	13 U	13 U
trans-1,3-Dichloropropene	12 U	12 U	13 U	13 U
Trichloroethene	12 U	12 U	13 U	13 U
Vinyl chloride	12 U	12 U	13 U	13 U
Xylene (total)	12 U	12 U	13 U	13 U
Semivolatile organics, ug/kg				
1,2,4-Trichlorobenzene	400 U	390 U	420 U	400 U
1,2-Dichlorobenzene	400 U	390 U	420 U	400 U
1,3-Dichlorobenzene	400 U	390 U	420 U	400 U
1,4-Dichlorobenzene	400 U	390 U	420 U	400 U
2,2'-oxybis(1-Chloropropane)	400 U	390 U	420 U	400 U
2,4,5-Trichlorophenol	990 U	980 U	1000 U	1000 U
2,4,6-Trichlorophenol	400 U	390 U	420 U	400 U
2,4-Dichlorophenol	400 U	390 U	420 U	400 U
2,4-Dimethylphenol	400 U	390 U	420 U	400 U
2,4-Dinitrophenol	990 U	980 U	1000 U	1000 U
2,4-Dinitrotoluene	400 U	390 U	420 U	400 U
2,6-Dinitrotoluene	400 U	390 U	420 U	400 U
2-Chloronaphthalene	400 U	390 U	420 U	400 U
2-Chlorophenol	400 U	390 U	420 U	400 U
2-Methylnaphthalene	400 U	390 U	420 U	400 U
2-Methylphenol	400 U	390 U	420 U	400 U
2-Nitroaniline	990 U	980 U	1000 U	1000 U

Appendix D
Table D-2 Summary of Subsurface Soil Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19B00101	19B00201	19B00301	19B00401
Lab ID	G7550001	G7550002	G7717002	G7717001
Sampling Date	11-May-95	11-May-95	31-May-95	31-May-95
alpha-BHC	NA	NA	2.2 U	2.1 U
alpha-Chlordane	NA	NA	2.2 U	2.1 U
Aroclor-1016	NA	NA	42 U	40 U
Aroclor-1221	NA	NA	85 U	82 U
Aroclor-1232	NA	NA	42 U	40 U
Aroclor-1242	NA	NA	42 U	40 U
Aroclor-1248	NA	NA	42 U	40 U
Aroclor-1254	NA	NA	42 U	40 U
Aroclor-1260	NA	NA	42 U	40 U
beta-BHC	NA	NA	2.2 U	2.1 U
delta-BHC	NA	NA	2.2 U	2.1 U
Dieldrin	NA	NA	4.2 U	4 U
Endosulfan I	NA	NA	2.2 U	2.1 U
Endosulfan II	NA	NA	4.2 U	4 U
Endosulfan sulfate	NA	NA	4.2 U	4 U
Endrin	NA	NA	4.2 U	4 U
Endrin aldehyde	NA	NA	4.2 U	4 U
Endrin ketone	NA	NA	4.2 U	4 U
gamma-BHC (Lindane)	NA	NA	2.2 U	2.1 U
gamma-Chlordane	NA	NA	2.2 U	2.1 U
Heptachlor	NA	NA	2.2 U	2.1 U
Heptachlor epoxide	NA	NA	2.2 U	2.1 U
Methoxychlor	NA	NA	22 U	21 U
Toxaphene	NA	NA	220 U	210 U
Inorganics, ug/kg				
Aluminum	6960 J	4880 J	5240 J	2590 J
Antimony	7.1 U	6.9 U	7.9 U	7.5 U
Arsenic	0.67 B	0.64 B	0.5 U	0.48 U
Barium	32.1 J	7 J	24.2 B	7 B
Beryllium	0.07 J	0.04 J	0.04 U	0.03 U
Cadmium	0.74 U	0.72 U	0.82 U	0.79 U
Calcium	165 J	45.1 J	136 B	275 B
Chromium	8.2	4.7	5.6	1.9 B
Cobalt	0.74 B	0.68 U	0.77 U	0.74 U
Copper	0.5 B	0.33 U	0.43 U	1.9 U
Iron	370 J	213 J	398 J	165 J
Lead	0.36 UR	3.1 J	2.6 J	4.9 J
Magnesium	116 B	50.1 B	134 B	23.1 B
Manganese	1.2 B	0.9 B	1.3 B	0.46 B
Mercury	0.05	0.03 U	0.03 U	0.03 U
Nickel	3.4 U	3.3 U	3.8 U	3.6 U
Potassium	205 B	104 U	118 U	113 U
Selenium	0.55 UJ	0.53 U	0.61 U	0.58 U
Silver	0.62 U	0.61 U	0.69 U	0.66 U
Sodium	11.3 U	6.9 U	11.9 U	9.4 U
Thallium	0.43 U	0.42 U	0.48 U	0.46 U
Vanadium	5.5 B	7 B	5.5 B	4.2 B
Zinc	0.74 B	0.65 B	1.3 B	0.94 B
General Chemistry, mg/kg				
Total Petroleum Hydrocarbons	20.2	47.8	31.9	4.9

Appendix D

Table D-3. Summary of Groundwater Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19G00101	19G00201	19G00301	19G00401
Lab ID	G7716010	G7716009	G7716007	G7716008
Sampling Date	31-May-95	31-May-95	31-May-95	31-May-95
Volatile organics, ug/L				
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	1 U	1 U	1 UR	1 UR
1,2-Dibromoethane	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	1 U	1 U	1 U
2-Butanone	5 UR	5 UR	5 UR	5 UR
2-Hexanone	5 U	5 U	5 UJ	5 UJ
4-Methyl-2-pentanone	5 U	5 U	5 U	5 U
Acetone	5 UR	6 UR	5 UR	5 UR
Benzene	1 U	1 U	1 U	1 U
Bromochloromethane	1 U	1 U	1 U	1 U
Bromodichloromethane	1 U	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U	1 U
Carbon disulfide	1 U	1 U	1 U	1 U
Carbon tetrachloride	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U	1 U
Chloroform	1 U	1 U	1 U	1 U
Chloromethane	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U
Methylene chloride	2 U	2 U	2 U	2 U
Styrene	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	1 U	1 U	1 U
Trichloroethene	1 U	1 U	1 U	1 U
Vinyl chloride	1 U	1 U	1 U	1 U
Xylene (total)	1 U	1 U	1 U	1 U
Semivolatile organics, ug/L				
1,2,4-Trichlorobenzene	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	1 U	1 U
2,2'-oxybis(1-Chloropropane)	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	25 U	25 U
2,4,6-Trichlorophenol	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	25 UJ	25 UJ	25 UJ	25 UJ
2,4-Dinitrotoluene	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10 U	10 U	10 U	10 U
2-Chlorophenol	10 U	10 U	10 U	10 U

Appendix D
Table D-3. Summary of Groundwater Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19G00101	19G00201	19G00301	19G00401
Lab ID	G7716010	G7716009	G7716007	G7716008
Sampling Date	31-May-95	31-May-95	31-May-95	31-May-95
2-Methylnaphthalene	10 U	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U	10 U
2-Nitroaniline	25 U	25 U	25 U	25 U
2-Nitrophenol	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	10 U	10 U
3-Nitroaniline	25 U	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25 UJ	25 UJ	25 UJ	25 UJ
4-Bromophenyl-phenylether	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U	10 U
4-Nitroaniline	25 U	25 U	25 U	25 U
4-Nitrophenol	25 UJ	25 UJ	25 UJ	25 UJ
Acenaphthene	10 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	10 U	10 U
Benzo(a)pyrene	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(b)fluoranthene	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	1 U	1 U	1 U	1 U
Butylbenzylphthalate	10 U	10 U	10 U	10 U
Carbazole	10 U	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	10 U	10 U
Dibenzofuran	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U
Dimethylphthalate	10 U	10 U	10 U	10 U
Fluoranthene	10 U	10 U	10 U	10 U
Fluorene	10 U	10 U	10 U	10 U
Hexachlorobenzene	1 U	1 U	1 U	1 U
Hexachlorobutadiene	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U	10 U
Hexachloroethane	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine (1)	10 U	10 U	10 U	10 U
Naphthalene	10 U	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U	10 U
Pentachlorophenol	1 U	1 U	1 U	1 U
Phenanthrene	10 U	10 U	10 U	10 U
Phenol	10 U	10 U	10 U	10 U
Pyrene	10 U	10 U	10 U	10 U
Pesticides/PCBs, ug/L				
4,4'-DDD	NA	NA	0.1 U	0.1 UJ
4,4'-DDE	NA	NA	0.1 U	0.1 UJ

Appendix D
Table D-3. Summary of Groundwater Analytical Results
Study Area 19

Naval Training Center, Orlando
Orlando, FL

Sample ID	19G00101	19G00201	19G00301	19G00401
Lab ID	G7716010	G7716009	G7716007	G7716008
Sampling Date	31-May-95	31-May-95	31-May-95	31-May-95
4,4'-DDT	NA	NA	0.1 U	0.1 UJ
Aldrin	NA	NA	0.05 U	0.05 UJ
alpha-BHC	NA	NA	0.05 U	0.05 UJ
alpha-Chlordane	NA	NA	0.05 U	0.05 UJ
Aroclor-1016	NA	NA	0.5 U	0.5 UJ
Aroclor-1221	NA	NA	0.5 U	0.5 UJ
Aroclor-1232	NA	NA	0.5 U	0.5 UJ
Aroclor-1242	NA	NA	0.5 U	0.5 UJ
Aroclor-1248	NA	NA	0.5 U	0.5 UJ
Aroclor-1254	NA	NA	0.5 U	0.5 UJ
Aroclor-1260	NA	NA	0.5 U	0.5 UJ
beta-BHC	NA	NA	0.05 U	0.05 UJ
delta-BHC	NA	NA	0.05 U	0.05 UJ
Dieldrin	NA	NA	0.1 U	0.1 UJ
Endosulfan I	NA	NA	0.05 U	0.05 UJ
Endosulfan II	NA	NA	0.1 U	0.1 UJ
Endosulfan sulfate	NA	NA	0.1 U	0.1 UJ
Endrin	NA	NA	0.1 U	0.1 UJ
Endrin aldehyde	NA	NA	0.1 U	0.1 UJ
Endrin ketone	NA	NA	0.1 U	0.1 UJ
gamma-BHC (Lindane)	NA	NA	0.05 U	0.05 UJ
gamma-Chlordane	NA	NA	0.05 U	0.05 UJ
Heptachlor	NA	NA	0.05 U	0.05 UJ
Heptachlor epoxide	NA	NA	0.05 U	0.05 UJ
Methoxychlor	NA	NA	0.5 U	0.5 UJ
Toxaphene	NA	NA	5 U	5 UJ
Inorganics, ug/L				
Aluminum	961	3780	805	1840
Antimony	2.5 U	2.5 U	2.5 U	2.5 U
Arsenic	1.9 UJ	1.9 J	1.9 UJ	1.9 UJ
Barium	9.5 J	16.4 J	12 J	14.7 J
Beryllium	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
Cadmium	3.1 U	3.5 U	3.1 U	3.1 U
Calcium	1470 B	1550 B	11000	86400
Chromium	3.1 U	3.1 U	3.1 U	3.1 U
Cobalt	2.9 UJ	2.9 UJ	2.9 UJ	2.9 UJ
Copper	1.4 U	3.4 U	1.4 U	3 U
Iron	2660	2540	170	251
Lead	1.5 U	1.7 B	1.5 U	1.5 U
Magnesium	2040 B	2860 B	1200 B	948 B
Manganese	6.6 B	4.3 B	0.7 B	1 B
Mercury	0.12 U	0.12 U	0.12 U	0.12 U
Nickel	14.2 U	14.2 U	14.2 U	14.2 U
Potassium	444 UJ	631 J	726 J	525 J
Selenium	2.3 U	2.3 U	2.3 U	2.3 UJ
Silver	2.6 U	2.6 U	2.6 U	2.6 U
Sodium	4400 B	1670 B	1490 B	6770
Thallium	1.8 UJ	1.8 UJ	1.8 U	1.8 U
Vanadium	7.9 B	10.6 B	2.5 U	39.8 B
Zinc	7 B	4.8 B	1.4 B	3 B
General Chemistry, mg/L				
Total Suspended Solids	9	11	4	47

Notes for Analytical Results Tables
Study Area 19

Naval Training Center, Orlando
Orlando Florida

NA = Identified parameter not analyzed.
Sample ID = Sample Identifier
Lab ID = Laboratory identifier

Units:

mg/kg milligram per kilogram
ug/kg microgram per kilogram
mg/L milligram per liter
ug/L microgram per liter

The following standard validation qualifiers have the following definitions:

- U The analyte/compound was analyzed for but was not detected above the reported sample quantitation limit. The number preceding the U qualifier is the reported sample quantitation limit.
- J The analyte/compound was positively identified and the associated numerical value is an estimated concentration of the analyte/compound in the sample.
- B The inorganic analyte was positively identified and the associated numerical value is an estimated concentration because the detection was below the contract required detection limit (CRDL) and above the instrument detection limit.
- UJ The analyte/compound was not detected above the reported sample quantitation limit. The reported quantitation limit, however, is approximate and may or may not represent the actual limit of quantitation necessary to accurately measure the analyte/compound in the sample.
- R The sample results are rejected during data validation because of serious deficiencies in meeting quality control criteria.